Phoenix-Goodyear Airport Superfund Site Q & A Session

Pebble Creek HOA Meeting
June 7, 2012

General Information

Jerry Younker relayed the following messages which the Pebble Creek HOA board wanted him to share with the residents:
A:

- The only purpose for well EPA MW-51A is as a groundwater monitoring well. It will not be used as an injection well.
- Your drinking water is safe. The typical depth to your primary source of drinking water is 750 feet below ground.
- What will be left at the end of the installation is a small manhole cover.
- Crane Co. and Jerry met with residents in immediate vicinity of EPA MW-51A and will continue to meet with them as needed.
- 3-7 days prior to the work, there will be a Residents' Advisory Notice to homeowners in the area.
- The access agreement between the PebbleCreek HOA Board and Crane was developed with the best interests of the homeowners in mind.

How many superfund sites are there in the United States?

A: EPA: There are nearly 1600 Sites across the U.S.

Monitoring Well Information

Where will monitoring well EPA MW-51A (in the northwestern portion of the PGA North Site) be located?

A: HOA: The well will be located just 50 feet northwest of the restroom for the 14th Tee for the PebbleCreek Golf Course.

When will installation of groundwater monitoring well EPA MW-51A begin?

A: Crane: August 6, 2012

How many monitoring wells do you have?

A: Crane: Over 100 monitoring wells are associated with the PGA North Site.

How many extraction wells do you have?

A: Crane: We have 12 extraction wells associated with the PGA North Site.

Why are we talking more monitoring wells and not more extraction wells? We have been monitoring this Site for decades. Why concentrate on more monitoring wells and not cleanup?

A: Crane: The 33A groundwater extraction and treatment system is effective in helping to control the plume in the northwest. We are looking at both more monitoring wells and more extraction wells. Crane is preparing a work plan now for the installation of another Subunit A extraction well, EA-09, located north of Van Buren. The work plan will need to be reviewed by the Agencies and Stakeholders, and we will need to address their comments; but we expect to drill this well in September or October 2012.

You haven't made much progress if you are still installing monitoring wells.

A: Crane: We have shrunk the plume in the northeastern area for PGA North. We have hydraulically controlled the plume—we could not say this 4-5 years ago. The plume is large—it grew. However, we are keeping drinking water wells protected. In 2010, we installed extraction well EA-07, five injection wells along Dysart Road, and 6 miles of pipeline in 7 months. This would typically take 2-3 years.

Why do you need EPA MW-51A?

A: Crane: This is a compliance well for the City of Goodyear's wells at the Adaman Well Field. This well location would give the city of Goodyear ample warning if there were to be an issue from pumping of the Adaman wells. The proposed location is not far out from the edge of the PGA North plume. It will ultimately help us design the optimal location for the injection system for the groundwater extracted from EA-08.

You mentioned in the presentation that you will be using a hammer drill process for well installation. Will this cause any structural damage to houses in the vicinity of the well?

A: Crane: No. There is no danger to any structures. There will not be a lot of vibration at the surface–maybe in the top 10 feet and immediately adjacent to the borehole there might be some slight vibration.

What about the noise generated from the drill rig? Will it be similar to new house construction-type noise?

A: Crane: It will be loud, but the drilling will go very quickly.

Will there be any noise for future work after the well is installed?

A: Crane: The only future work needed will be for the collection of water levels and groundwater samples and a pickup truck will be used for this purpose. There won't be any excessive noise associated with well sampling.

Subsurface Characteristics

Can you explain the three different units?

A: Crane: There is the Upper Alluvial Unit (UAU), the Middle Alluvial Unit (MAU), and the Lower Alluvial Unit (LAU). The UAU is subdivided into Subunit A, Subunit B, and Subunit C. Most of the contamination is located in Subunit A. There is some contamination in Subunit C, but this plume is smaller and is isolated south of I-10. Subunit C extraction wells are located within the Subunit C plume, so this provides hydraulic control. The 3D model (shown on computer) can depict what happens in the aquifer when pumping wells turn on and when injection wells turn on. It can also show an interpretation of water levels over time. The 3D Model was shown depicting water levels from 1997 to 2008, which included the following events:

- December 2007: The EA-06 groundwater treatment system (GTS) came on line.
- March 2008: The EA-05 groundwater treatment system came on line.
- August/September 2010: Extraction well EA-07 and the Dysart Rd. injection wells came on line (water from EA-07 is piped back to the EA-06 GTS for treatment and re-injection).

- December 2011: The EA-08 groundwater treatment system came online.

Collectively, we are pumping and treating 3,000 gallons per minute from all systems.

An aquifer is not "liquid water"—not a cavern of water? Correct?

A: Crane: Correct. The water is infused in the subsoil. The groundwater flows but it doesn't move fast. It only exists in the pore spaces.

EPA/ITSI: The groundwater moves less than one foot per day.

Plume Size & Control Information

How is the plume hydraulically controlled?

A: Crane: A 3-dimensional representation of the subsurface was shown and described to contain Subunits A, B, and C. The 3-D model helps one to visualize what is located below the surface. Subunit A is where the majority of the contamination is located. Subunit B retards the flow of contamination from Subunit A to Subunit C. Subunit C is a primary drinking water aquifer. North of I-10, there is no contamination in Subunit C. Also depicted in the 3D model are the various wells in the vicinity of the Site. When rotated on the computer, the 3-D model provides a graphical interpretation of what is located in the subsurface when viewed from various points in the aquifer.

Can you show us the locations of the 5 groundwater treatment systems associated with the PGA North Site?

A: Crane: Yes. The following groundwater treatment systems were shown on the map: 33A, EA-06 (which also treats groundwater extracted from EA-07), EA-08, EA-05, and the Main Treatment System located near the source area and which includes 7 extraction wells.

If old cotton wells or irrigation wells were used again, would this pull the plume back toward the northeast?

A: Crane: It depends on where the water is drawn from–Subunit A, Subunit B, Subunit C, or the MAU. We know where all of the wells are located and which are pumping and not pumping. Most of these types of wells are screened in deeper zones. The injection wells have wells screened in the upper zones.

Since starting, how much have you reduced the plume in the PGA North portion?

A: Crane: To date, we have removed 4,500 gallons of pure TCE product. PGA became a Superfund Site in 1983 and pumping began in 1994. At EA-08 GTS, groundwater is piped to the 33A treatment system and the treated water is discharged to the Roosevelt Irrigation District (RID) Canal. Eventually, this treated water will be reinjected back into the groundwater in the northwest area.

If you can control the plume using injection wells, why can't you push it back to a smaller area?

A: Crane: We are shrinking the plume but it's difficult to get it back into a much smaller footprint. Contamination adsorbs to the fine grains in the aquifer, which makes cleanup difficult.

Economy is slowing building growth. If there is an expected increase in growth, will this force the plume into Subunit C? How would growth impact the plume?

A: Crane: City of Avondale production well COA-18 has always been on the outside, eastern edge of the plume, and our efforts in the northeast area were primarily to protect COA-18. COA-18 is screened in the upper aquifer. Crane uses injection to ensure that well only pulls in clean water. We are injecting a sufficient volume of water along Dysart Road to protect production wells in this area. Additional pumping (by production wells to meet new or expanded demand) won't pull water down since Subunit B retards movement from Subunit A to Subunit C. The water providers monitor the water quality and keep track of the plume relative to their wells. We coordinate with the cities and water providers regarding their future plans and include this information in our groundwater model. In addition to the water providers sampling the production wells, Crane also samples the water quality from the production wells on a monthly basis.

Is the plume still migrating toward the bulge, toward the northeast?

A: Crane: We are preparing a capture zone analysis for EPA to address whether or not the plume has been contained. Crane is confident that the plume is hydraulically controlled. EPA requested a comprehensive analysis so the Agencies can also evaluate if capture is achieved. The report is due in October 2012. The groundwater model suggests that we have hydraulic capture of the plume.

Drinking Water Concerns

Is it a 1:1 ratio for the volume of water extracted and the volume of water re-injected?

A: Crane: Not exactly. The volume of water extracted equals the total of the volume of water re-injected plus the volume of water discharged to the RID canal (or potentially another irrigation canal or other beneficial reuse scenario).

How do you know that Subunit B keeps contamination in Subunit A and that it won't travel to Subunit C?

A: Crane: The 3-D model is using soil types and contaminant information from the installation of the various monitoring wells. Most of the water supply wells draw from the MAU, which is deeper than where the contamination has been detected. For this area (PebbleCreek HOA vicinity), there are a series of extraction and injection wells– including the five injection wells installed along Dysart Road. The groundwater extracted from these systems is treated with carbon. The clean water is injected above the water table in the various injection wells, which helps push contamination toward the interior of the plume. Production wells along the Agua Fria River previously pulled the plume toward the northeast. The injection wells along Dysart Road have helped to shift the groundwater flow direction to the northwest.

Chemicals/Contaminants/Concerns

Are there any potential health hazards?

A: Crane: No. Your drinking water is safe. Also, there is no vapor intrusion related to the PGA North Site.

EPA: We have evaluated the potential exposure pathways for both people and ecological receptors. There are no completed routes of exposure. We are managing the risks with cleanup activities. According to the Consent Decree (CD), the goal of this cleanup is aquifer restoration.

Why wasn't Perchlorate detected before 2001 at PGA-North?

A: EPA: During the investigation phase, the water and soil were tested for numerous known contaminants but perchlorate was not thought to be a problem at the Site until later in the investigation.

TCE Concentrations

Is the contaminant concentration of trichloroethene (TCE) in any area indicative of all wells?

A: EPA: At PGA North and PGA South, we have historically seen higher contaminant concentrations in the source areas than we see in wells other parts of the plume. For PGA North, the main drywells on the former Unidynamics (UPI) Property was the source area. For PGA South, the source of the contamination was surface contamination which flowed off the property and down through the soil and in some instances to Subunit C through conduit action at exiting irrigation wells.

Is contamination still fed into the plume from a source point for PGA North?

A: Crane: No other source areas exist. The only identified source area for PGA North is the main drywells at the former UPI facility. Investigations were done under the former buildings (after they were removed) and no other sources were identified. The source is four main drywells. Soil vapor extraction (SVE) was used to remove TCE from above the groundwater table. However, there is still groundwater contamination below the source area.

Has the pumping decreased the TCE concentrations?

A: Crane: There used to be detectable TCE concentrations in the northeastern portion of the plume, but samples collected now are non-detect for TCE. We have stabilized the plume in this area, reduced TCE concentrations in this area, and provided hydraulic control.

On the 3D plume that was shown, is the percent of contamination consistent throughout the plume? Is there an area where TCE concentrations are higher?

A: Crane: TCE concentrations are not consistent. The highest concentrations are located in the source area located south of Van Buren and west of Litchfield Road. Currently, a focused feasibility study is being written to evaluate alternate remedies to expedite cleanup. Crane is looking at installing another extraction well near the source area, and there is already injection along the south end of the Site.

Remedy & Operations

How do you know when to clean the carbon filters? Do you discard them?

A: Crane: Two 10,000-pound vessels are located in series or in-line. They are sampled at the influent (beginning of the series), at the mid-point (between the two vessels), and at the effluent (after the last vessel). If concentrations rise in the mid-point sample, then the carbon is changed out. The carbon is removed by a vendor, Calgon, Siemens, and new carbon is put into the vessel. The spent (used) carbon is sent to a facility in Parker, Arizona, where the carbon is regenerated to destroy the contaminants and get the carbon ready for re-use.

Where does the clean water go? Is it re-injected?

A: Crane: Not all of the water is re-injected. A portion of the treated water is re-injected and a portion of the treated water is discharged into the RID Canal. Injected water is re-injected above the water table to create hydraulic mounds. This helps control groundwater flow. This has helped us to shrink the plume in the northeast area.

Clean-Up

What is the cleanup time?

A: Crane: We are still collecting data. Once the groundwater model is approved by EPA and the remedy for the source area is selected, we'll be able to project the time to cleanup.

Will this take 100 years? 20 years?

A: Crane: We are planning to expedite cleanup by implementing a source area remedy. It's difficult to estimate, but it won't be 100 years.

Do you collaborate with other Sites? Is the time to cleanup comparable to other Sites?

A: Crane: There are many Superfund Sites throughout the U.S. Cleanups vary, but information does get shared. For the source area, we look at how other similar sites handled the contaminants and evaluate what technologies worked and didn't work.

Costs

Is Crane responsible for part of the cost at PGA North?

A: Crane: Yes – cleanup and oversight costs for EPA, ADEQ, and consultants – Crane pays for all of this.

EPA: There is a legal agreement between EPA and Crane Co. The Consent Decree (CD) includes the requirement for Crane to pay. It also includes a statement of work which is the roadmap for the cleanup. There is also a legal agreement with The Goodyear Tire & Rubber Co. (GTRC) which includes the requirement for GTRC to pay these same costs for PGA South.

What would happen (to the cleanup activities) if Crane went bankrupt?

A: EPA: The Superfund Program requires an annual report to be submitted by any responsible party such as Crane Co. and the GTRC which documents their ability to pay for the projected cleanup costs at PGA North and PGA South, respectively. This annual submittal is called "Financial Assurances" by which the companies demonstrate the ability to pay for the cleanups.